REVISED PERMIT MODIFICATION REQUEST
SECTION 311 PUB. L. 108-137/SECTION 310 PUB. L. 108-447
AND
REMOTE HANDLED WASTE

INTRODUCTION

The Carlsbad Field Office of the U.S. Department of Energy (**DOE)** and Washington TRU Solutions LLC (**Permittees**) are submitting this revised Permit Modification Request (**PMR**) to the Hazardous Waste Facility Permit (**HWFP**) for the Waste Isolation Pilot Plant (**WIPP**) in accordance with Permit Condition I.B.1 and 20.4.1.900 New Mexico Administrative Code (**NMAC)** which incorporates Title 40 Code of Federal Regulations (**CFR**) Section 270.42.

The purpose of this revised PMR is to consolidate the pending Class 3 Remote-Handled (**RH**) Transuranic (**TRU**) Waste PMR and the Class 3 PMR submitted pursuant to Section 311 of Pub. L. 108-137 (**Section 311 PMR)**. In addition, this revised PMR proposes to increase the storage capacities of the Parking Area Unit (**PAU)** and Waste Handling Building (**WHB**) Unit. It also proposes to designate staging areas for waste containers awaiting or undergoing waste acceptance prior to storage and disposal. The increased storage capacities and staging areas are considered necessary to support the activities proposed in this revised PMR.

ADMINISTRATIVE HISTORY

The Permittees submitted the RH PMR on June 28, 2002. On March 5, 2003, the New Mexico Environment Department (**NMED**) issued a Notice of Deficiency (**NOD**) for the RH PMR. On May 5, 2003, the Permittees submitted a response to the RH NOD and a revised PMR. The Permittees' May 5, 2003 transmittal letter raised questions regarding characterization of RH TRU mixed waste. On July 24, 2003, NMED responded to the Permittees' questions regarding characterization of RH TRU mixed waste.

On January 9, 2004, the Permittees submitted a PMR pursuant to Section 311 of the Energy and Water Development Appropriations Act for Fiscal Year 2004, Pub. L. 108-137. Section 311 states:

> (a) The Secretary of Energy is directed to file a permit modification request to the Waste Analysis Plan (WAP) and associated provisions contained in the Hazardous Waste Facility Permit for the Waste Isolation Pilot Plant (WIPP). For purposes of determining compliance of the modifications to the WAP with the hazardous waste analysis requirements of the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), or other applicable laws waste confirmation for all waste received for storage and disposal shall be limited to: (1) confirmation that the waste contains no ignitable, corrosive, or reactive waste through the use of either radiography or visual examination of a statistically representative subpopulation of the waste; and (2) review of the Waste Stream Profile Form to verify that the waste contains no ignitable, corrosive, or

> reactive waste and that assigned Environmental Protection Agency hazardous waste numbers are allowed for storage and disposal by the WIPP Hazardous Waste Facility Permit.
>
> (b) Compliance with the disposal room performance standards of the WAP hereafter shall be demonstrated exclusively by monitoring airborne volatile organic compounds [**VOCs**] in underground disposal rooms in which waste has been emplaced until panel closure.

The changes requested in the January 9, 2004 Section 311 PMR addressed only contact-handled (**CH**) TRU mixed waste. After the submission of the Section 311 PMR, Congress passed Section 310 of the Consolidated Appropriations Act, 2005, Pub. L. 108-447, which was identical to Section 311 except for two word changes.[1] Both Section 311 of the Energy and Water Development Appropriations Act for Fiscal Year 2004 and Section 310 of the Consolidated Appropriations Act, 2005, are now relevant to this revised PMR. Accordingly, where appropriate, this document will refer to **Sections 311/310** to retain consistency in the administrative record and accurately reflect these relevant legislative provisions.

On December 30, 2004, the NMED issued an NOD for the Section 311 PMR that required the Permittees to submit a response to NMED within 60 days. On February 28, 2005, NMED granted the Permittees' request for an extension of time to respond to the NOD, to March 30, 2005.

On March 29, 2005, NMED issued a second NOD for the RH PMR and directed the Permittees to develop an approach that "addresses both CH and RH TRU mixed waste characterization in a unified manner, through a consolidated response and a revised PMR." NMED also stated that the Permittees may include a request for increased storage capacities in the PAU and WHB Unit and for designation of separate staging areas for waste containers undergoing waste acceptance for storage and disposal. The NOD granted the Permittees a 30 day extension, to April 29, 2005, to respond to both the Section 311 NOD and the second RH NOD.

THE REVISED PERMIT MODIFICATION REQUEST

This revised PMR is submitted as a Class 3 permit modification pursuant to 40 CFR §270.42(c). Permits may be modified "to allow facilities to make technological improvements, comply with new environmental standards, respond to changing waste streams and generally improve waste management practices." 53 Fed.Reg. 37912, 37913 (Sept. 29, 1988). This revised PMR integrates Section 311/310 statutory changes, existing regulatory requirements, and improvements in waste management activities identified during the past six years of WIPP disposal operations. Responding to the NODs and consolidating the Section 311 and RH PMRs

[1] For further discussion of Public Law 108-447, see Section 311 NOD Comment/Response Matrix, Response to Comment L.1.

provide the Permittees an opportunity to make improvements in the existing waste analysis, management, storage, and disposal processes; and to allow for the receipt and disposal of RH TRU mixed waste at WIPP. In response to the Section 311 NOD and the second RH NOD, the Permittees are submitting the following:

1. A transmittal letter.

2. A revised PMR that consolidates the Section 311 PMR and the RH PMR and also includes a request for increased storage capacities and the use of staging areas.

3. A redline/strikeout version of the HWFP.

4. A Comment/Response Matrix for the Section 311 NOD.

5. A Comment/Response Matrix for the second RH NOD.

In the following narrative, Section 1.0 describes the changes to be made to the HWFP and explains why the modifications are needed. Section 2.0 identifies the modification as a Class 3 modification. Section 3.0 contains a regulatory crosswalk showing affected portions of the HWFP. Section 4.0 contains a table of proposed changes that identifies the exact changes to be made to the HWFP conditions and provides the justification for each of the proposed changes.

1.0 Describe the exact changes to be made to the permit conditions and supporting documents referenced in the permit and explain why the modification is needed [20.4.1.900 NMAC (incorporating 40 CFR §270.42(c)(i) and (iii))].

The exact changes to be made to the HWFP conditions and supporting documents are set forth in Modules I, II, III and IV and Attachments A, B, B1 through B7, C, D, E, F,G, H, I, J1, M, M1, M2, N and O. The changes to the text of the HWFP and referenced attachments are identified in the revised redline/strikeout version of the HWFP using a double underline and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. A summary of the primary changes and justifications for the changes are provided below.

1.1 Remote-Handled TRU Mixed Waste

The HWFP, issued October 27, 1999, by NMED, only authorizes the management, storage and disposal of CH TRU mixed waste, and Section II.C.3.h of the HWFP prohibits the management, storage and disposal of RH TRU mixed waste at the WIPP facility.[2]

[2] Following the 1999 Permit Hearing, the NMED Hearing Officer recommended that prior to accepting any RH TRU mixed waste at WIPP, the Permittees should obtain a permit modification. Subsequently, the *Findings of Fact and Conclusions of Law* adopted by the NMED Secretary stated that a WAP and related changes to other facility operations must be submitted as a modification to the existing HWFP to allow disposal of RH TRU mixed waste.

The revised PMR proposes a WAP for both CH and RH TRU mixed waste. The proposed WAP applies previously established requirements to both CH and RH TRU mixed waste and is discussed in Section 1.2 below.

In addition to the inclusion of RH TRU mixed waste in the WAP, the revised PMR proposes the following changes to the HWFP to allow the management, storage and disposal of RH TRU mixed waste at the WIPP facility:

- Module I, General Permit Conditions, is modified to authorize the management, storage and disposal of RH TRU mixed waste. A definition of RH TRU mixed waste is provided.
- Module II, General Facility Conditions, is modified to authorize the management, storage and disposal of RH TRU mixed waste. The prohibition against the acceptance of RH TRU mixed waste contained in Permit Condition II.C.3.h is deleted.
- Module III, Container Storage, is modified to authorize the staging and storage of RH TRU mixed waste containers in specific locations and quantities. The proposed changes to Module III identify acceptable containers for RH TRU mixed waste, the management of containers, maintenance of the secondary containment systems in the PAU and WHB Unit, and the inspections applicable to RH TRU mixed waste.
- Module IV, Geologic Repository Unit, is modified to authorize disposal of RH TRU mixed waste in the underground Hazardous Waste Disposal Units (**HWDUs**).
- Attachment A, General Facility Description, is modified to authorize the management, storage and disposal of RH TRU mixed waste.
- Attachment C, Security, is modified to include RH TRU mixed waste.
- Attachment D, General Inspection Requirements, is modified to provide the inspection schedule and processes for RH TRU mixed waste.
- Attachment E, Preparedness and Prevention, is modified to include RH TRU mixed waste. The following changes are included:
    - Aisle space;
    - Video cameras for remote monitoring;
    - Remotely-operated equipment, shielded areas, and a hot cell to limit radiation exposure; and
    - Processes and equipment for handling waste containers.
- Attachment F, RCRA Contingency Plan, is modified for RH TRU mixed waste.
- Attachment G, Traffic Patterns, is modified for RH TRU mixed waste (i.e., traffic patterns in the PAU and the WHB).
- Attachments H and H2, Personnel Training Program, are modified for RH TRU mixed waste. A training course and qualification card outline are added for RH TRU mixed waste handling.
- Attachment I, Closure Plan, is modified for RH TRU mixed waste.
- Attachment J, Post-Closure Plan, is modified for RH TRU mixed waste.

- Attachment M1, Container Storage Units, is modified for RH TRU mixed waste and includes container management practices specific to RH TRU mixed waste.
- Attachment M2, Geologic Repository, is modified for RH TRU mixed waste and includes specific provisions for the disposal of RH TRU mixed waste in the underground HWDUs.
- Attachment O, Revised Hazardous Waste Permit Application, Part A, is modified for RH TRU mixed waste.

The modifications proposed in the revised PMR provide for the safe and efficient management, storage, and disposal of RH TRU mixed waste and comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR Part 264). The modifications also assure that the management, storage, and disposal of RH TRU mixed waste is protective of human health and the environment.

1.2 Proposed Changes to the Waste Analysis Plan

The revised PMR sets forth waste analysis activities to be undertaken by the Permittees to provide the information required to store and dispose of both CH and RH TRU mixed waste at the WIPP facility. In order to store or dispose of TRU mixed waste, the Permittees must verify that the EPA hazardous waste numbers (**HWNs**) assigned to the waste are allowed for storage and disposal at the WIPP facility and that the waste meets the requirements of the Treatment, Storage and Disposal Facility waste acceptance criteria (**TSDF-WAC**) (HWFP Attachment B7). The proposed waste analysis requirements rely on the use of AK information by the generator/storage site to assign HWNs and to determine that the waste meets the TSDF-WAC. In cases where the AK is not sufficient to resolve the assignment of HWNs, the generator/storage sites will perform additional waste analysis activities.[3]

In response to NMED's comments, the revised PMR proposes two alternative pathways that the Permittees may follow for waste approval. Both pathways require the generator/storage sites to compile the AK information into an auditable record for the waste stream. The sampling and analysis pathway requires the generator/storage site to perform sampling and analysis on a representative portion of the waste stream. The AK sufficiency determination pathway applies to those waste streams that the Permittees determine have sufficient AK information to satisfy the TSDF-WAC (e.g., to assign HWNs). For these waste streams, the Permittees may request an AK sufficiency determination from NMED. If NMED determines that the AK is sufficient, the waste may be shipped to the WIPP facility without further representative sampling and analysis. If NMED determines that AK is not sufficient, or when the Permittees do not submit an AK

[3] The Permittees have revised the conditions under which generator/storage sites perform representative sampling and analysis for waste streams that need the resolution of the assignment of HWNs. The Permittees believe that their original interpretation of Sections 311/310 set forth in the January 9, 2004 PMR is correct and is supported by the legislative history. However, the revised conditions have been included specifically to address NMED's comments. The proposed representative sampling and analysis meet the waste analysis requirements of §264.13 and are consistent with Sections 311/310.

sufficiency determination request, additional waste analysis (i.e., Headspace Gas Sampling and Analysis [**HSGSA**] and Solids Sampling and Analysis [**SSA**]) will be performed on a representative portion of the waste stream. These generator/storage site waste analysis requirements are described in Section 1.2.1 below. See Figure 1, Waste Stream Approval Process.[4]

The requirements for the waste analysis to be performed by the Permittees are set forth in HWFP Attachment B7. Because certain waste analysis activities will be performed by the Permittees, either at the WIPP facility or at the generator/storage site, the WAP has been revised to distinguish between off-site waste analysis activities to be undertaken by the generator/storage sites and the off-site waste analysis activities to be undertaken by the Permittees. The waste analysis activities to be performed by the Permittees are described in Section 1.2.2 below.

The current application of HSGSA and SSA for the confirmation of the AK record has been eliminated. This change responds to Sections 311(a)/310(a), which state that

> …waste confirmation for all waste received for storage and disposal shall be limited to: (1) confirmation that the waste contains no ignitable, corrosive, or reactive waste through the use of either radiography or visual examination of a statistically representative subpopulation of the waste; and (2) review of the Waste Stream Profile Form to verify that the waste contains no ignitable, corrosive, or reactive waste and that assigned Environmental Protection Agency hazardous waste numbers are allowed for storage and disposal by the WIPP Hazardous Waste Facility Permit.

Corresponding changes to the audit and surveillance program, and the data review and validation requirements are described in Sections 1.2.3 and 1.2.4 below. Because the Permittees have designated certain laboratories as "Permittee approved laboratories," references to such laboratories have been inserted where appropriate. The changes to HWFP Module II and HWFP Attachments B, B1, B2, B3, B4, B5, B6, and B7 are needed for those sections to be consistent with the proposed waste analysis requirements.

The revised PMR also responds to the waste analysis requirements set forth in 20.4.1.500 NMAC (incorporating 40 CFR §264.13) within the parameters set by Sections 311/310 and provides the Permittees with the information needed to store and dispose of TRU mixed waste at the WIPP facility. The revised PMR improves the waste management practices by tailoring the required waste analysis to the information needed for the assignment of HWNs and to meet the requirements of the TSDF-WAC. The revised PMR furthers the goals for the disposal of TRU mixed waste, decreases worker exposure to the radioactive and hazardous waste in the containers, and reduces overall cost. The modifications proposed in the PMR meet the waste analysis requirements of §264.13, are consistent with the requirements of Sections 311/310, are consistent with the waste acceptance criteria in the HWFP, and are protective of human health and the environment.

[4] All referenced figures are attached at the end of this document.

1.2.1 Generator/Storage Site Waste Analysis Requirements.

1.2.1.1 The AK Record

The revised PMR requires the generator/storage sites to provide the Permittees with waste analysis information prior to waste stream approval. The generator/storage site waste analysis parameters are provided in HWFP Section B-2 of Attachment B. The generator/storage site waste analysis program will continue to be based on the use of the AK record to obtain sufficient objective information to document that the waste stream complies with the TSDF-WAC found at modified Permit Conditions II.C.3.a through II.C.3.h and to assign HWNs. The procedural requirements for the generator/storage site TRU mixed waste analysis program are provided in HWFP Section B-2 of Attachment B, and waste analysis methods available to the generator/storage sites are identified in HWFP Section B-3 of Attachment B.

The revised PMR requires the generator/storage sites to assemble AK information into an auditable record for the waste stream (HWFP Attachment B4), and to complete the Waste Stream Profile Form (**WSPF**) Section B3-11 of Attachment B3. The AK record would be summarized in an AK Summary Report and would be included in the Waste Analysis Information Summary (**WAIS**) Section B3-11 of Attachment B3. The requirements for assembling the AK record and AK Summary Report are specified in HWFP Attachment B4. If the AK information indicates that the waste stream does not meet the TSDF-WAC, the generator/storage site would have to perform remediation (e.g., removal of aerosol cans, liquid absorption).

Two data quality objectives (**DQOs**) for AK have been added to HWFP Section B-4a(1) of Attachment B. These DQOs are for demonstrating that a waste stream complies with the TSDF-WAC and for estimating material parameter weights.

1.2.1.2 Generator/Storage Site Sampling and Analysis

As discussed in Section 1.2, above, the PMR proposes two pathways for waste stream approval. The sampling and analysis pathway requires the generator/storage site to perform representative sampling and analysis of the waste stream after the AK record is compiled. Headspace gas sampling and analysis may be performed on debris waste. Solids sampling and analysis may be obtained for homogeneous solid or soil/gravel waste streams. The available portion of the waste stream would be randomly sampled and analyzed prior to completion of the WAIS and WSPF. The generator/storage sites would be required to follow the waste sampling methods in HWFP Attachment B1, the statistical methods in HWFP Attachment B2, and the quality assurance objectives (**QAOs**) and data validation techniques in HWFP Attachment B3. See Figure 2, Approach for Solid and Headspace Gas Sampling and Analysis to Obtain Supplemental Waste Analysis Information.

The Permittees require the generator/storage sites to use qualified laboratories for sample analysis (HWFP Section B-3a(3) of Attachment B). The Idaho National Laboratory (**INL**) and the Carlsbad Environmental Monitoring and Research Center (**CEMRC**) in Carlsbad will be qualified to analyze samples in SUMMA canisters. The INL laboratory will also be qualified to sample and analyze homogeneous solids. Analytical methods are required to: 1) satisfy the appropriate QAOs, and 2) be implemented through laboratory-documented standard operating procedures. Laboratories will be subject to audit as discussed below.

The proposed use of representative sampling and analysis is consistent with the waste analysis requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.13). The use of representative sampling and analysis is also consistent with accepted practices at other hazardous waste treatment, storage and disposal facilities. The required use of EPA sampling and analysis method SW-846 assures the sufficiency of the information collected.

The AK sufficiency determination pathway applies to waste streams that the Permittees believe have sufficient AK information to demonstrate compliance with the TSDF-WAC. Such waste streams may be proposed for approval without further representative sampling and analysis (HWFP Section B7-1a(3) of Attachment B7). If the Permittees determine that the AK is sufficient, they may request an AK sufficiency determination from NMED. NMED will review the AK summary and associated documentation. If the AK is acceptable, NMED will issue a determination that the AK is sufficient for the waste and the waste stream may be shipped to the WIPP without further sampling and analysis. If the AK is deemed insufficient, or if the Permittees do not submit an AK sufficiency determination request, the Permittees will inform the generator/storage site that the waste stream is not eligible for shipment to WIPP (HWFP Section B7-1a(3) of Attachment B7). The generator/storage site would then have the option to use the sampling and analysis pathway.

The request for an AK sufficiency determination will include an AK Summary Report that addresses the following required items:

- Mandatory AK information is available (HWFP Section B4-2a and 2b of Attachment B4);
- The waste stream has been properly delineated and meets the HWFP definition of a waste stream (HWFP Section B4-2b of Attachment B4, and Section B-1a of Attachment B);
- The AK process described in the HWFP was followed (for example, AK personnel were appropriately trained, discrepancies in the AK record were documented and resolved) (HWFP Attachment B4);
- The generator/storage site developed a written procedure for compiling the AK information and assigning HWNs (HWFP Section B4-3b of Attachment B4);
- The generator/storage site has assessed the AK process (HWFP Section B4-3b of Attachment B4); and
- The generator/storage site has documented evidence that the waste meets the TSDF-WAC (HWFP Module II Permit Conditions II.C.3.a. through II.C.3.h.).

If NMED determines that the AK information is not sufficient, the generator/storage site will perform additional waste analysis. An example of the AK sufficiency determination pathway is the Los Alamos National Laboratory (**LANL**) Sealed Sources waste stream for which the NMED has already determined that AK is sufficient as detailed in the HWFP.

The proposed use of representative sampling and analysis when the AK record is determined to be insufficient assures that the Permittees will obtain the information needed to store and dispose of TRU mixed waste at the WIPP facility. The revised PMR will provide NMED with the opportunity to determine if the AK for a waste stream is sufficient before the waste stream is accepted for storage and disposal.

1.2.2 Permittee Level Waste Analysis Activities

The revised PMR proposes the following Permittee level waste analysis processes: 1) waste stream screening and verification, including verification that the assigned HWNs are allowed for storage and disposal by the HWFP; 2) the use of radiography, visual examination (VE), or the review of VE records to verify that the waste contains no ignitable, corrosive or reactive waste; and 3) an audit and surveillance program. The Permittees will conduct radiography, VE, or the review of VE records of a statistically representative subpopulation of the waste either at the WIPP facility or at the generator/storage site. See Figure 3, Waste Verification and Examination Process; Figure 4, Verification and Examination Process at the Generator/Storage Sites (or Other Off-Site Facilities); Figure 5, Verification and Examination Processes at WIPP.

In addition to proposed changes to HWFP Attachments B through B7, modifications are proposed to HWFP Conditions in II.C. to include the proposed Permittee waste analysis activities. Likewise, related modifications are proposed to HWFP Attachments E and F to reflect implementation of the Permittees' waste analysis activities. HWFP Attachments H1 and H2 are modified to add job descriptions and training requirements for Radiographer, Visual Examination Expert, and Permittees' Management Representative.

1.2.2.1 Permittee Level Waste Stream Screening and Verification

Permittee waste screening is a two-phased process. Phase I will occur prior to transporting the TRU mixed waste to the WIPP facility and Phase II will occur prior to waste acceptance for storage and disposal. Phase I will include audits of the generator/storage sites pursuant to the Permittees' Audit and Surveillance Program (HWFP Section B7-1a(1) of Attachment B7) and the Permittees' review of the WSPF (HWFP Attachment B7-1a(3)). The requirements for the audit and surveillance program are found in HWFP Attachment B6. At the WIPP facility, the Permittees will verify that the required elements of the WSPF are present, that the waste stream complies with the TSDF-WAC, and that the assigned HWNs are allowed for storage and disposal. The Permittees will resolve comments with the generator/storage sites prior to approving the WSPF. After resolution of comments with the generator/storage sites, the WSPF

may be approved by the Permittees and submitted to NMED. After WSPF approval, and remediation of prohibited items, if necessary, the waste will be approved for shipment to the WIPP facility. Phase II includes examination of the waste shipment and accompanying documentation after the waste shipment has arrived at the WIPP facility (HWFP Attachment B7-1b).

Requirements for Permittee level waste screening and verification are moved from HWFP Attachment B-4b to HWFP Sections B7-1a through B7-1b of Attachment B7 with only minor changes.

1.2.2.2 Radiography, VE, or Review of VE Records

The revised PMR proposes a Permittee waste analysis process that includes the examination, by radiography, VE, or review of VE records, of a representative subpopulation of each waste stream in each shipment that is sent to WIPP. The Permittees will be required to use the methods described in HWFP Sections B7-1b(5) and B7-1b(6) of Attachment B7. The VE records to be reviewed may be audio/video recordings or written VE records that meet the requirements in HWFP Section B7-1b(6) of Attachment B7. In those cases where the Permittees will review the generator/storage site VE records, the generator/storage site VE procedures must meet the minimum requirements for visual examination specified in HWFP Section B1-3 of Attachment B1.

If the results of the Permittees' examination indicate that the waste does not match the waste stream description or contains prohibited items, the waste will be designated as non-compliant waste and a corrective action process will be initiated. If non-compliant waste is at WIPP, either the entire shipment or the non-conforming portion of the shipment will be returned to the generator/storage site or sent to another off-site facility (HWFP Section B7-1b(9) of Attachment B7).

Seven percent of the containers (55-, 85- or 100-gallon drum, direct loaded standard waste box [**SWB**], direct loaded ten drum overpack [**TDOP**]) from each waste stream in each shipment will be randomly selected and reviewed either by radiography, VE, or a review of VE records (e.g., video/audio recording). A minimum of at least one container in each waste stream will be examined.

The proposed waste examination rate has the advantage of simplicity because there will not be multiple sampling rates for different waste streams. In addition, every waste stream in every shipment will be examined. This also simplifies the Permittee waste analysis process because containers to be examined will not be pre-selected from the entire waste stream population. Instead, they will be selected randomly once a shipment is configured, assuring the availability of every selected container.

The Permittees propose using a seven percent sampling rate for examination of waste shipments. Typically, the rate is established as a permit condition after the regulatory agency determines that the rate will be protective of human health and the environment. A ten percent verification rate is specified in the HWFP for Triassic Park (Roswell, New Mexico). The Permittees concluded that the use of a seven percent rate is consistent with WIPP transportation constraints and waste handling operations and provides verification of the waste. For example, WIPP shipments use TRUPACT-II transporters containing two seven-packs of 55-gallon drums each. A seven-pack is seven drums bound into an "assembly" using shrink wrap. WIPP operations are based on the assemblies and not on individual drums. The Permittee examination of waste shipments will require that an assembly be disassembled to retrieve the drum that has been chosen for radiography. The seven percent rate will limit the number of disassembly operations to three seven-packs per shipment (assuming three TRUPACT-IIs and only one waste stream in a shipment). A ten percent rate would require disassembly of up to five seven-packs per shipment. The seven percent rate allows the Permittees to limit potential radiation exposure by limiting the number of disassembly and reassembly operations while also providing a reasonable check on every shipment of waste.

1.2.2.3 Waste Examination at the WIPP Facility

Permittee level waste analysis may occur either at the generator/storage site or at the WIPP facility. Waste arriving at WIPP would be segregated into staging areas, pending examination. Staging areas will be separate from permitted storage areas. As discussed in Section 1.2.2.2 above, shipments typically arrive at the WIPP site as assemblies from which specific containers will be removed for waste examination. Until waste examination of the specified container is complete, the entire assembly will be “tagged” to indicate that waste examination has not occurred (HWFP Section M1-1c(1) of Attachment M1).

Generator/storage site waste examination may be used when the generator/storage site is shipping containers that cannot be radiographed at WIPP. For example, if the generator/storage site is placing 55-gallon drums into TDOPs, radiography will occur prior to packaging into the TDOP because of the container size limitation for typical radiography units (drums or SWBs). Radiography at the generator/storage site may also be used by the Permittees. Waste that is examined by the Permittees at the generator/storage sites may be placed into permitted storage areas once container integrity and identification numbers are verified.

Overpacked containers will be radiographed at the generator/storage site by the Permittees or under the supervision of the Permittees prior to overpacking. Containers selected for waste examination that contain classified materials that can be viewed using radiography will be radiographed by the Permittees or under the supervision of the Permittees at a location where the proper security measures are in place (e.g., the generator/storage site).

Permittee waste examination at the WIPP facility is analogous to the waste analysis practices undertaken at commercial hazardous waste storage and disposal facilities. Centralized waste

examination and record storage at the WIPP facility will facilitate NMED inspections by locating Permittee waste analysis and records at one site instead of at multiple sites. Waste management practices will also be improved by consolidating the Permittee records review and waste analysis at one site. The improvement in waste management will increase operational efficiency and result in cost savings.[5] The revised PMR proposes operational procedures and training requirements for waste examination at WIPP that are consistent with existing HWFP requirements.

1.2.3 Audit and Surveillance Program

The Permittees' audit and surveillance program is described in HWFP Attachment B6. The proposed audit program evaluates the adequacy and effectiveness of generator/storage site waste analysis activities. As part of the audit, operator qualifications will be verified, and Quality Assurance/Quality Control (**QA/QC**) procedures will be examined. A final audit report will be provided to NMED for approval.

Before a generator/storage site commences waste shipments to WIPP, the Permittees will conduct an initial audit of the site's waste analysis activities. Audits will be conducted at least annually thereafter, including the possibility of unannounced audits (i.e., not a regularly scheduled audit). These audits will allow NMED, either by observation or review, to verify that the Permittees have implemented the WAP and that generator/storage sites have implemented an effective program for the analysis of waste that meets the applicable WAP requirements. The Permittees will also conduct initial and annual audits of the Permittee approved laboratories performing waste sampling and/or analysis. The revisions to the audit plan are found in the redline/strikeout version of HWFP Attachment B6. Those activities performed by the Permittees that are subject to direct inspection by NMED would not be subject to audit under the WAP.

The following WAP methods will be audited annually:

- Headspace gas and solid sampling
- Headspace gas and solid sample analysis
- Acceptable Knowledge Process
- Generator/storage site general waste analysis program requirements (identification of prohibited items and associated administrative controls)

[5] An initial study comparing the centralization of waste analysis activities at the WIPP facility to decentralized waste analysis activities noted that cost-savings would result from consolidation. *Life-Cycle Cost Analysis of Transuranic Waste Characterization/Confirmation Alternatives*, January 9, 2004, National Energy Technology Laboratory (NETL).

Those methods used by a single entity at multiple sites (e.g., Central Characterization Project [**CCP**]) would be audited annually. The resulting approval will be valid at any TRU mixed waste generator/storage site where that entity is performing work under the WAP using any of the audited methods. The AK process will be audited once a year for each site. The AK audits will be performed at the location of the AK record.

The audit program has been modified to incorporate the changes to the WAP proposed in this revised PMR. The proposed audit program modifications will assure that the generator/storage sites and the Permittee approved laboratories conduct sampling and analysis of wastes in accordance with the WAP. The modifications to the audit program will also assure that the information supplied by each generator/storage site satisfies the waste screening and acceptability requirements of HWFP Section B6-1 of Attachment B6).

1.2.4 Data Review and Validation

The current WAP requires the following five levels of review for Batch Data Reports (**BDRs**):

- Independent Technical Review
- Technical Supervisory Review
- Facility Quality Assurance Review
- Site Project Quality Assurance Officer Review
- Site Project Manager Review

In the revised PMR, HWFP Section B3-9 of Attachment B3 reduces these five levels to two levels:

- Independent Technical Review
- Site Project Manager Review

For the WAP methods implemented by the Permittees, i.e., radiography, VE, or a review of VE records, the following levels of review are proposed (Section B7-1b(8) of Attachment B7):

- Independent Technical Review
- Permittee Management Review

Based on the proposed changes in waste analysis, BDRs will not be assembled for waste analysis performed by the Permittees. Instead, the radiography or VE data forms, video and audio recordings, and review checklists for each shipment will be approved and placed in the operating record.

Although the number of reviews will be reduced, the attributes that are checked during these reviews will not be reduced. The proposed modifications will assure that raw data are properly evaluated and analyzed, that the data reported satisfy the requirements of the WAP, and that the data presented represent the sampling and analysis activities as performed and that data have been subject to appropriate levels of review (Section B3-9 of Attachment B3).

1.2.5 Use of Staging Areas.

The revised PMR proposes to designate specific portions of the PAU and WHB Unit as staging areas for waste containers that are undergoing Permittee waste analysis activities. The staging areas will be used for waste that is undergoing manifest review, awaiting placement in permitted storage areas or undergoing screening and verification as described in HWFP Attachment B7. Typically, waste will not be held in a staging area for more than 10 days. If, however, waste containers are determined to be non-compliant, they may be held in the staging areas for up to an additional 60 days.[6] HWFP Section A-4a(2) of Attachment A describes the staging areas. The staging areas requirements are specified in HWFP Section M1-1c(1) of Attachment M1. The Parking Area Staging Area is shown in Figure M1-2 and the WHB Staging Areas are shown in Figure M1-1.

Module I of the HWFP is modified to include definitions of "staging areas" and "waste receipt." In addition, HWFP Attachments C, D, E, F, and I are modified to reflect the proposed use of staging areas. Permitted storage areas that will be changed to staging areas will undergo closure as required by the Permit Closure Plan (HWFP Attachment I).

Waste containers that have been identified as non-compliant with the TSDF-WAC will be tagged as "Non-Compliant Waste." Non-compliant waste will not be held at the WIPP facility for more than 60 days after the discovery of non-compliance. The waste will either be returned to the generator/storage site, sent to another DOE facility, or a third party for remediation (HWFP Section M1-1c(1) of Attachment M1).

The modifications proposed in the revised PMR are consistent with the waste analysis requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.13) and with Section 311/310. The modifications proposed in the revised PMR improve waste management practices, are consistent with the waste acceptance criteria in the HWFP, and are protective of human health and the environment.

[6] The proposed changes are consistent with the recently adopted EPA rule on the modification of the hazardous waste manifest system (70 Fed.Reg. 10776 (March 4, 2005)).

1.3 Changes to the Method for Demonstrating that the WIPP Underground Disposal Rooms are Compliant with the Environmental Performance Standards in the HWFP Pursuant to 40 CFR §264.601(c)

As required by Sections 311(b)/310(b), the PMR proposes to change the method for demonstrating that the WIPP underground disposal rooms are compliant with the environmental performance standards in the HWFP. Under the current HWFP, TRU waste containers are subject to HSGSA for purposes of identifying and quantifying "the concentrations of VOC constituents in the total waste inventory to ensure compliance with the environmental performance standards of 20.4.1.500 NMAC (incorporating 40 CFR §264.601(c))" (Section B-3a(1) and Section B-4a(1) of Attachment B). This revised PMR proposes to eliminate this requirement and exclusively demonstrate compliance with the environmental performance standards by sampling, analysis, and quantification of the VOC concentrations in rooms of active disposal panels in which TRU mixed waste has been emplaced. See Figure 6, Proposed Process for Room-Based VOC Monitoring. Accordingly, changes are proposed to HWFP Module IV and HWFP Attachment N to add room-based VOC monitoring to the existing confirmatory VOC monitoring program in the WIPP underground.

No changes to the environmental performance standards are proposed. The current monitoring of VOCs at Stations VOC-A and VOC-B in the underground will remain unchanged. Consistent with the provisions of Sections 311(b)/Section 310(b), this revised PMR proposes direct measurement of the VOC concentrations inside disposal rooms in which waste has been emplaced. Monitoring continues until the active panel is closed.

1.3.1 Proposed VOC Monitoring

Monitoring VOCs will be performed as follows:

- A sample head will be installed inside each active RH TRU and CH TRU mixed waste disposal room behind the exhaust drift bulkhead.
- When a disposal room is filled, another sample head will be installed in the inlet of the room, ventilation barriers installed, and collection of closed room samples will commence.
- This sequence will proceed in the remaining disposal rooms until panel closure activities are initiated by installing the inlet air ventilation barrier in Room 1 of the panel.

1.3.2 Sampling Frequency and Action Levels

This revised PMR proposes a bi-weekly sampling frequency for disposal rooms based on the experience from actual measurements of VOCs in closed disposal rooms in Panel 1. Bi-weekly frequency is conservative and appropriate for the room-based monitoring program. Station VOC-A and VOC-B samples will continue to be collected twice each week.

Action levels for the room-based VOC monitoring program proposed in this revised PMR are modeled after those in the current confirmatory VOC monitoring program. If the results of the bi-weekly monitoring shows that the concentration of one half the Room-Based Limit (**RBL**) for any target analyte in any room is reached, the sampling frequency will be increased to once per week for that room, and NMED will be notified. The once per week sampling frequency will continue until concentrations in the room(s) fall below 50 percent of the RBL, or until closure of the panel, whichever occurs first.

In the event analytical results indicate that any target analyte concentration in the closed room immediately adjacent to the active room is at 95 percent of the RBL, the Permittees will collect a verification sample from the room within three working days of receiving such analytical data. If the results of the verification sample confirm the original results, the Permittees will discontinue use of the disposal room and proceed to the next room. NMED will be notified within five working days of receiving the analytical laboratory data for the verification sample.

1.3.3 Target Analytes

Nine VOCs have been identified for confirmatory and room-based monitoring and are listed in HWFP Attachment N, Table N-1. The analysis will focus on routine detection and quantification of these compounds in collected samples. As part of the analytical evaluations, the presence of other compounds will be investigated. These compounds will be classified as Tentatively Identified Compounds (**TICs**). For confirmatory VOC monitoring programs, TICs detected in 25 percent or more of the samples in a running year will be reported to NMED and added to the target analyte list, unless the Permittees can justify their exclusion from the target analyte list.

Information on TICs detected in the confirmatory and room-based monitoring programs will be placed in the WIPP Operating Record and reported to NMED in the Annual Mine Ventilation Report in accordance with Section IV.F.2.b of Module IV.

1.3.4 Reporting VOC Concentrations

Results of room-based VOC monitoring will be maintained in the WIPP Operating Record, and submitted to the NMED in the Confirmatory VOC and Mine Ventilation Rate Monitoring Annual Report. These reporting provisions for room-based VOC monitoring are included in this revised PMR in HWFP Attachment N.

The proposed monitoring program sets forth action levels that are conservative and require the Permittees to notify NMED when they are reached. The proposed monitoring system will provide a direct measurement of accumulated VOCs in the underground HWDUs. The monitoring system will protect human health and the environment by assuring that room-based limits are not exceeded. Six years of operational experience support the proposed VOC monitoring protocols.

2.0 Identify the Class of the Modification [20.4.1.900 NMAC (incorporating 40 CFR §270.42(c)(ii)].

The revised PMR is being submitted as a Class 3 permit modification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42(d)(1)(other modifications)). The changes sought in this PMR meet the criteria of a Class 3 modification.

3.0 Provide the applicable information required by 40 CFR §§270.13 through 270.22, 270.62, 270.63, and 270.66 [20.4.1.900 NMAC (incorporating 40 CFR §270.42(c)(iv)].

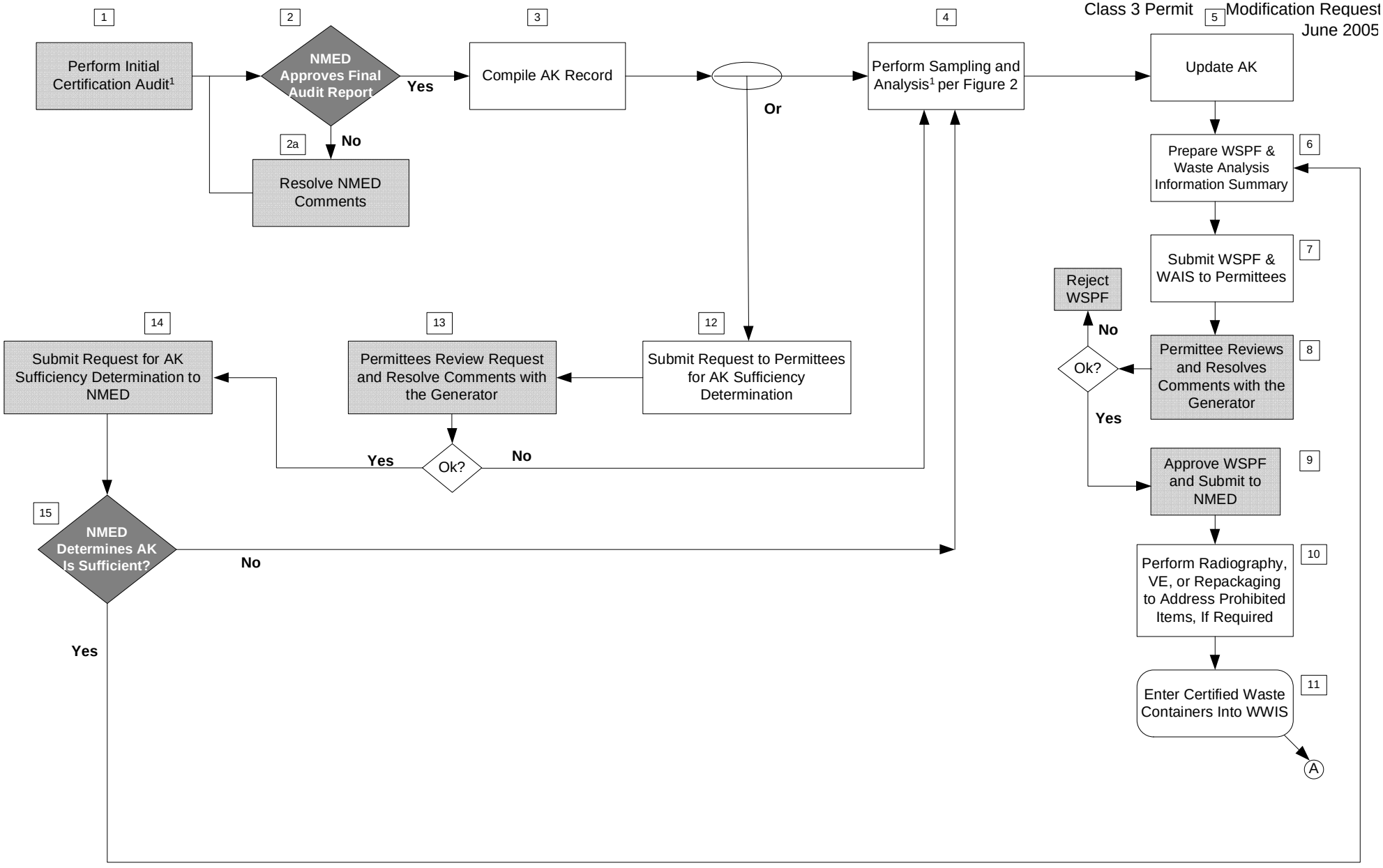
The revised regulatory crosswalk describes those portions of the HWFP that have been modified by this revised PMR to provide the information required by 40 CFR §§270.13 through 270.22. The provisions of 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP and are not listed in the regulatory crosswalk. The provisions of 40 CFR §§270.23 and 270.33 are applicable to the WIPP HWDUs.

4.0 Table of Proposed Changes.

The Table of Changes identifies each of the proposed changes within the context of the PMR and provides justification for editorial changes.

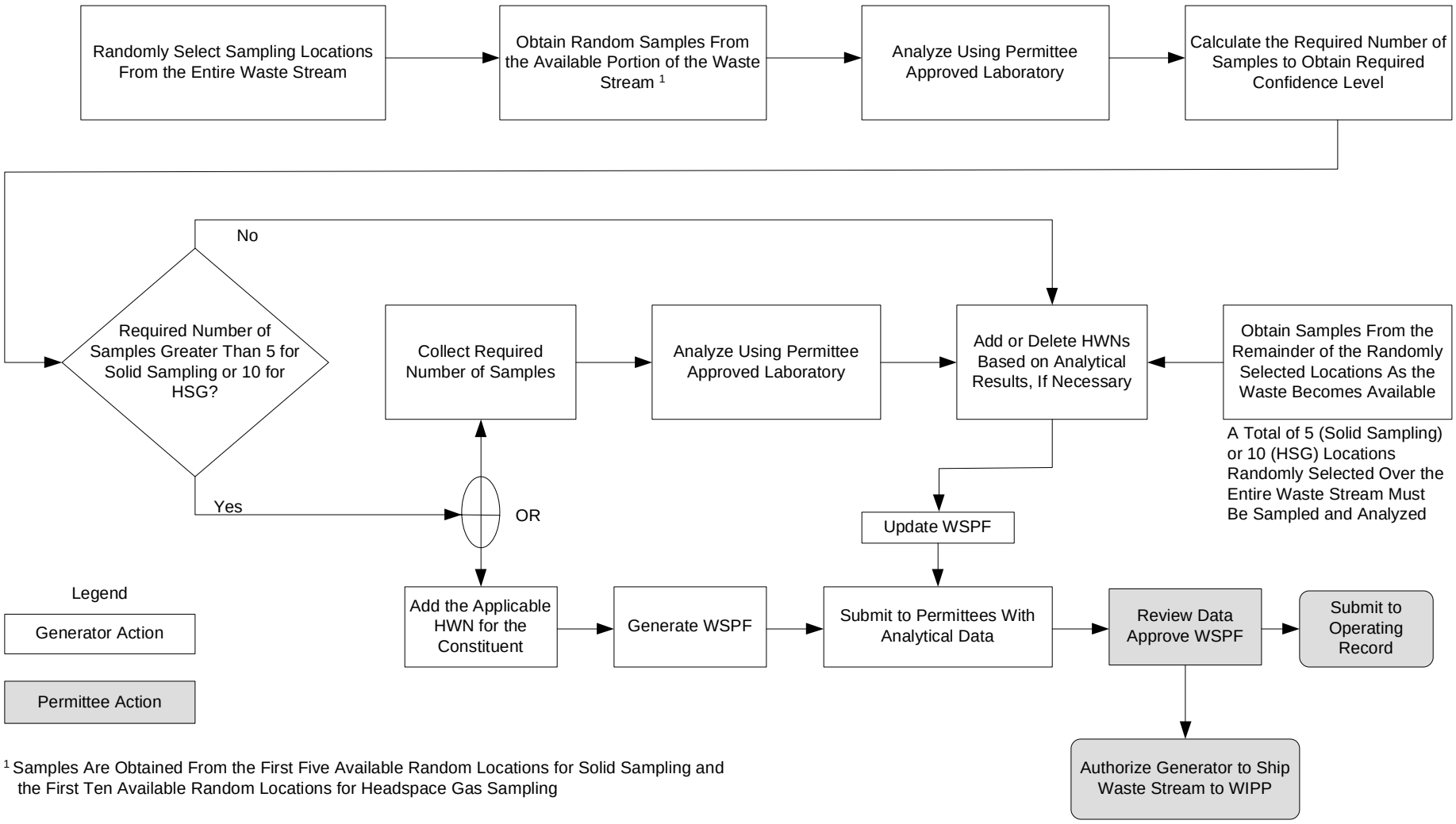
5.0 Certification required by 20.4.1.900 (incorporating 40 CFR §270.42(c)(v)).

The transmittal letter for this revised PMR contains the required signed certification statement.



[1]The generator storage site will have to perform Waste Analysis activities for at least a few containers in at least one waste stream prior to the audit so objective evidence of implementation can be generated for review during the audit.

Figure 1 WASTE STREAM APPROVAL PROCESS



[1] Samples Are Obtained From the First Five Available Random Locations for Solid Sampling and the First Ten Available Random Locations for Headspace Gas Sampling

Figure 2 APPROACH FOR SOLID AND HEADSPACE GAS SAMPLING AND ANALYSIS TO OBTAIN SUPPLEMENTAL WASTE ANALYSIS INFORMATION

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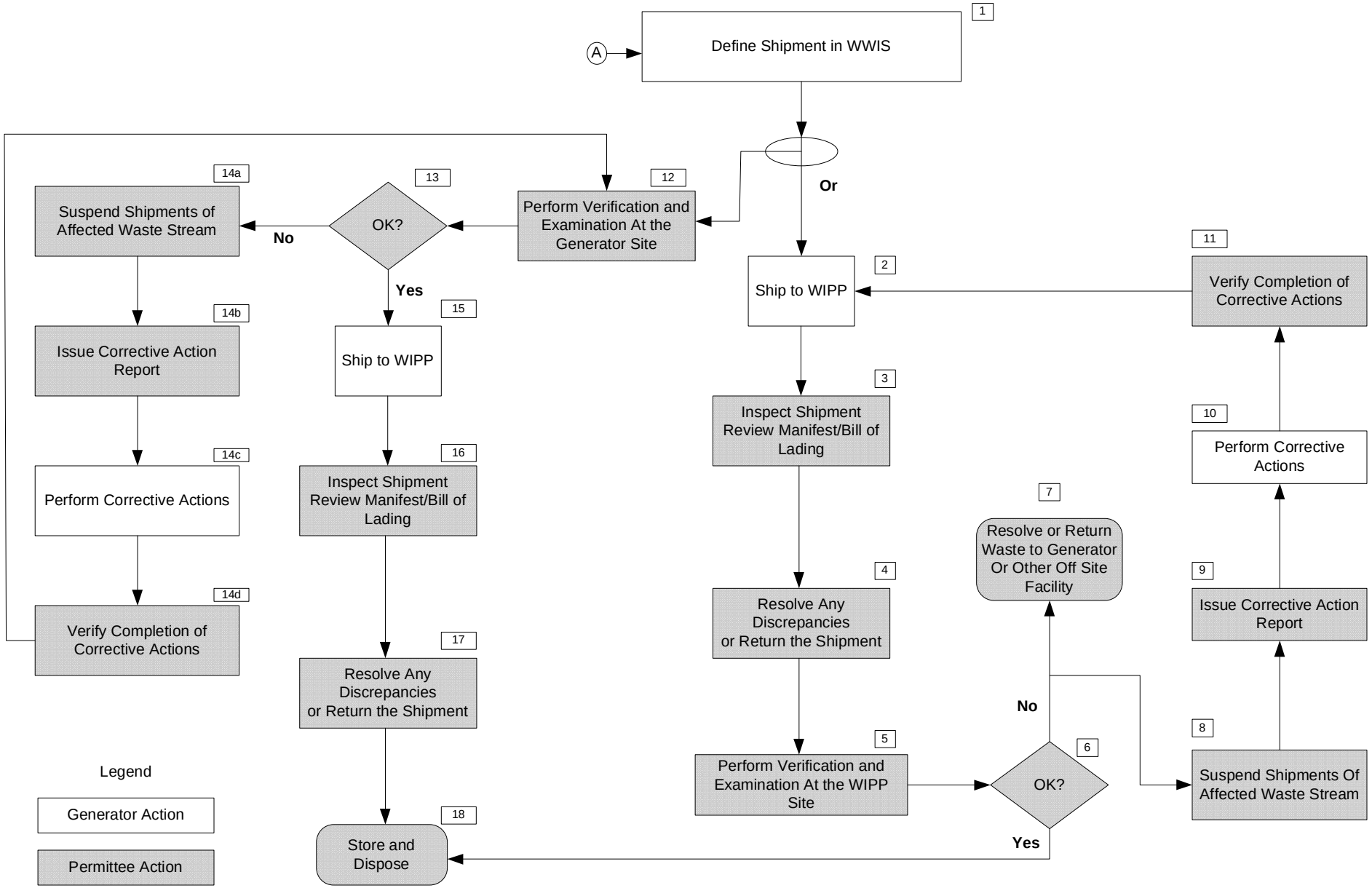


Figure 3 WASTE VERIFICATION and EXAMINATION PROCESS

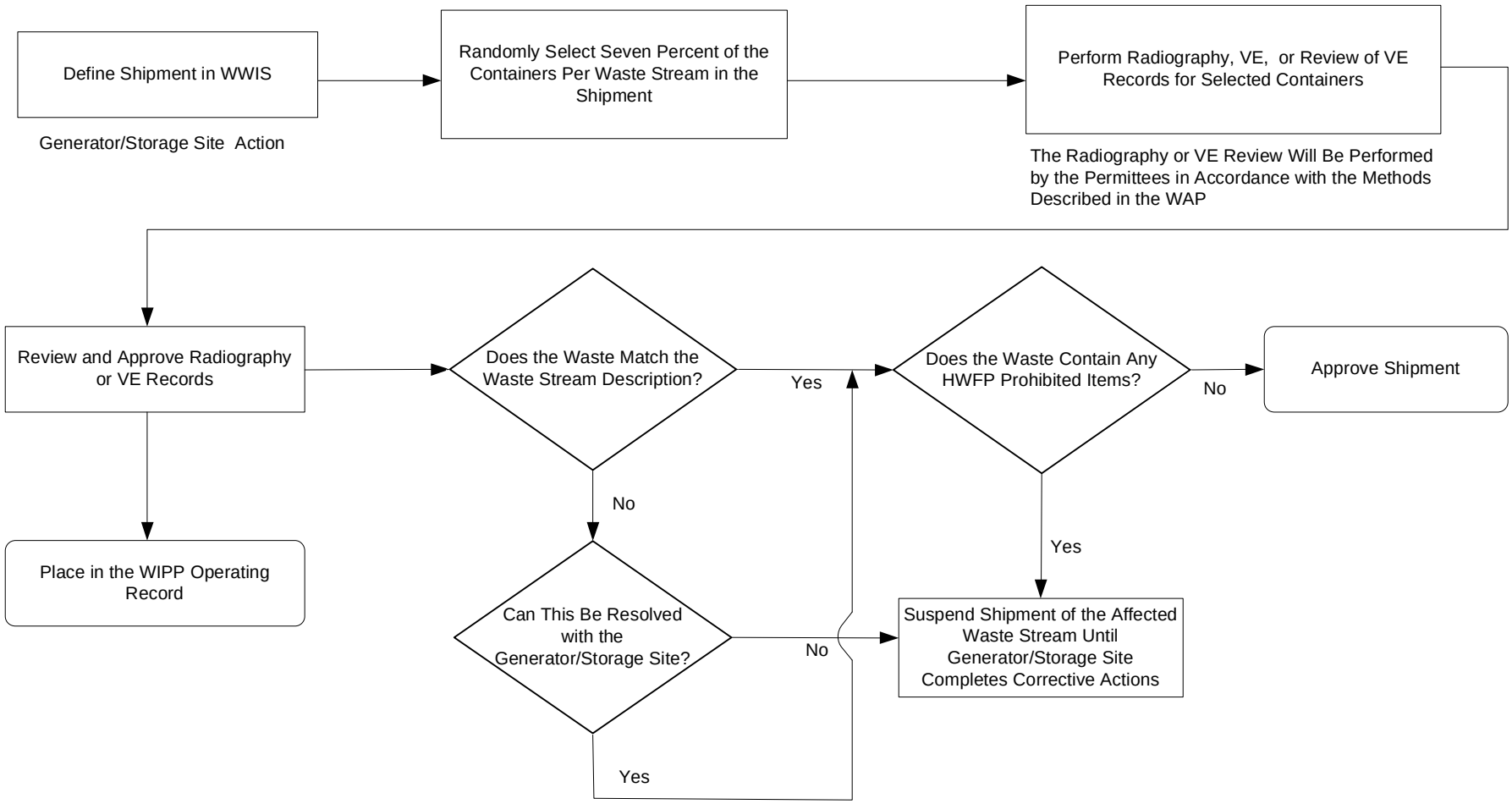


Figure 4 VERIFICATION and EXAMINATION PROCESS AT THE GENERATOR/STORAGE SITES (OR OTHER OFF-SITE FACILITIES)

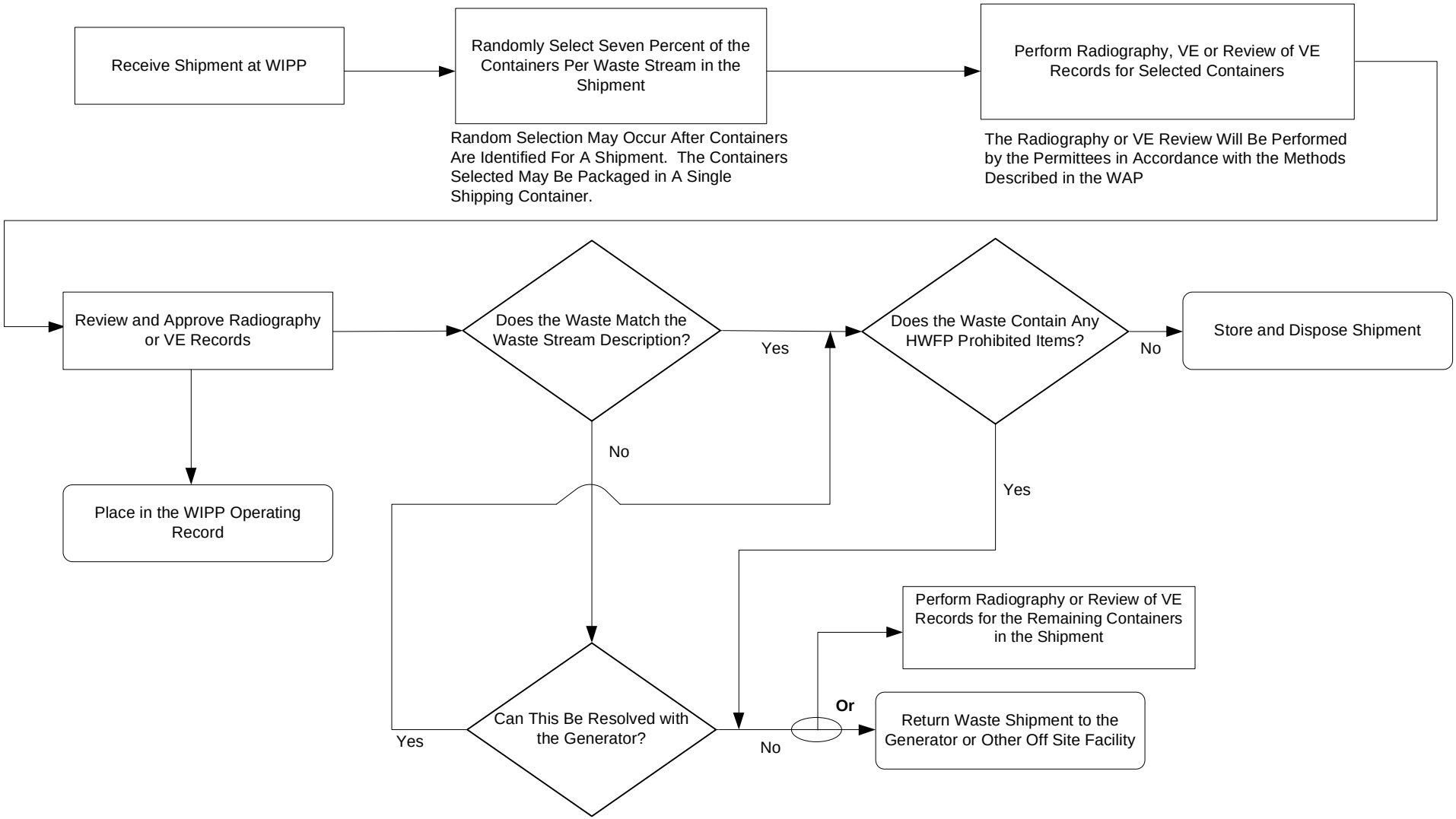
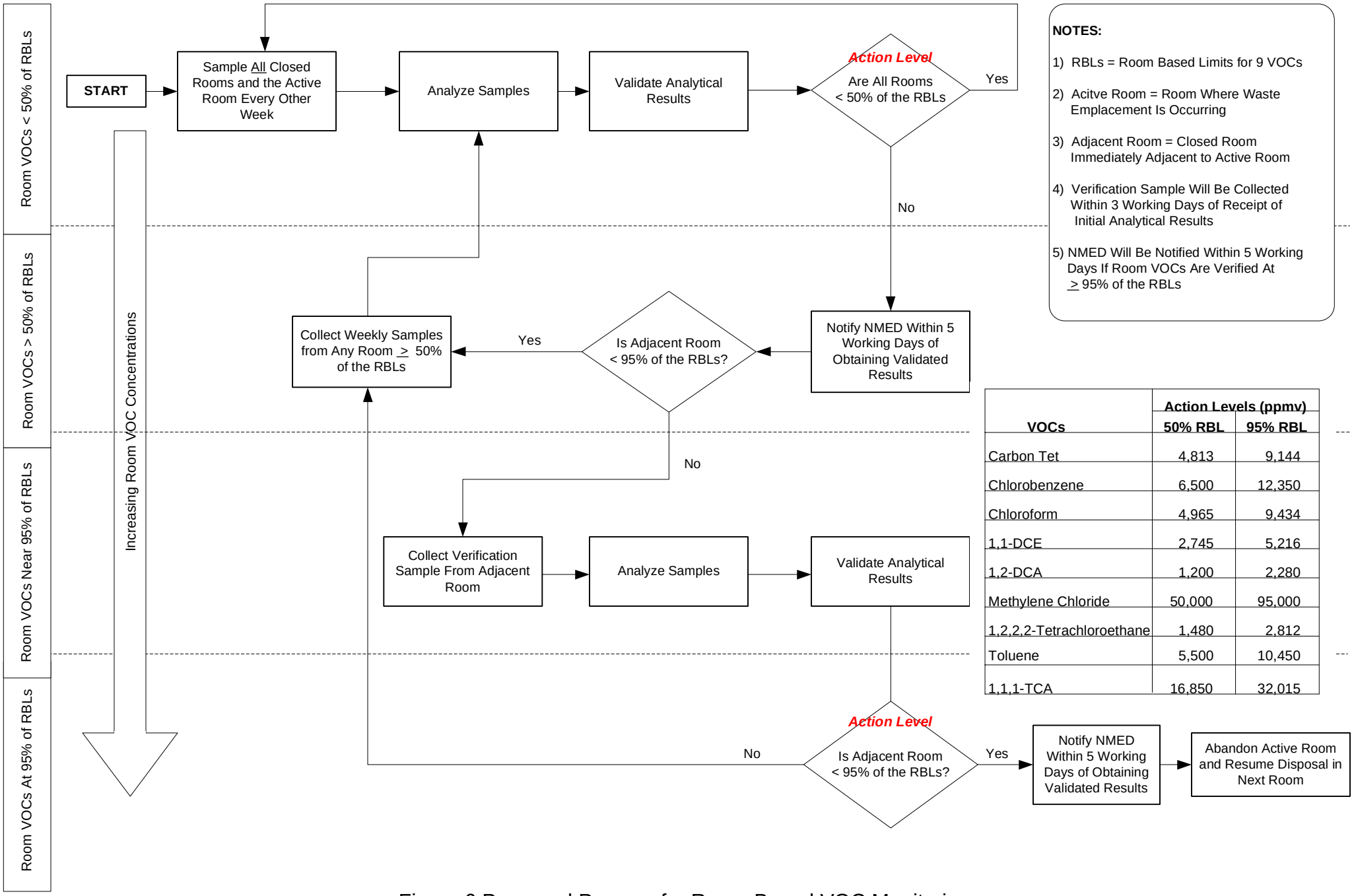


Figure 5 VERIFICATION and EXAMINATION PROCESS AT WIPP



VOCs	Action Levels (ppmv) 50% RBL	95% RBL
Carbon Tet	4,813	9,144
Chlorobenzene	6,500	12,350
Chloroform	4,965	9,434
1,1-DCE	2,745	5,216
1,2-DCA	1,200	2,280
Methylene Chloride	50,000	95,000
1,2,2,2-Tetrachloroethane	1,480	2,812
Toluene	5,500	10,450
1,1,1-TCA	16,850	32,015

Figure 6 Proposed Process for Room-Based VOC Monitoring